

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

2. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

3. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3, 5, 6 and 8-19 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-13, 15 and 17-21 of copending Application No. 10/578,268. Although the conflicting claims are not identical, they are not patentably distinct from each other because all the elements of instant claims 1-3, 5 and 8-19 are recited in the corresponding copending claims according to the table below (marked as anticipatory). The difference in the instant claims 1-3, 5 and 8-19 and corresponding copending claims is that the corresponding copending claims contain more elements and are more specific. Thus the invention of the corresponding copending claims are in effect "species" of the "generic" invention of

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the instant claims 1-3, 5 and 18-19. It has been held that the generic invention is

“anticipated” by the “species”. See *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

Instant Claim	Corresponding Copenning Claims	Anticipatory
1	1,2,3,4	Yes
2	1,2,3,4	Yes
3	1,2,3,4	Yes
4	-	
5	5	Yes
6	6	No
7	-	
8	7	Yes
9	8	Yes
10	9	Yes
11	10	Yes
12	11	Yes
13	12	Yes
14	13	Yes
15	15	Yes
16	17,18	Yes
17	19	Yes
18	20	Yes
19	21	Yes

5. The copending claim 6 is not a "species" of the instant claim 6. The copending claim 6 includes a “gloss control agent” among the choices of additives as well as all the additives included in the instant claim 6. The embodiments of the invention of copending claim 6 in which a gloss control agent is the only additive from the list in copending claim 6 included in the compositions do not fall under the scope of instant claim 6. However, if any other additives from the list in copending claim 6 are included in the composition of an embodiment of the invention, than that embodiment meets all the limitations of the instant claim 6; the instant claim 6 and the copending claim 6 have substantially overlapping scopes. Since the instant claim 6 and the copending claim 6 have overlapping scope, they are not patentably distinct from one another.

6. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida et al. (US 3,574,786).

9. Regarding claims 1 and 5, applicant claims a polyacetal resin comprising 1) a polyacetal resin corresponding to the polyoxymethylene composition of Ishida et al. (column 1 line 16) and 2) a carboxylic acid hydrazide in the amount of 0.001 to 20 parts by weight relative to 100 parts by weight of the polyacetal resin corresponding to dicarboxylic acid dihydrazides in an amount of 0.0833 to 8.33% of the polyoxymethylene composition of Ishida et al. (column 1 lines 16-22) wherein the claimed carboxylic acid hydrazide include:

a. A saturated or unsaturated long-chain aliphatic carboxylic acid hydrazide (further limited to a saturated or unsaturated aliphatic C.sub.16-40 carboxylic acid hydrazide in claim 2, a saturated or unsaturated aliphatic C.sub.16-40 dicarboxylic acid mono- or dihydrazide in claim 3, and eicosanedioic acid

dihydrazide in claim 4) corresponding to the eicosane- 1,20- dicarboxylic acid of Ishida et al. (column 2 line 3)

b. A saturated or unsaturated alicyclic carboxylic acid hydrazide (further limited to a saturated or unsaturated C.sub.6-40alicyclic carboxylic acid hydrazide in claim 2, a saturated or unsaturated alicyclic C.sub.6-20dicarboxylic acid mono- or dihydrazide in claim 3, and 1,4-cyclohexanedicarboxylic acid dihydrazide in claim 4) corresponding to the cyclohexane dicarboxylic acid of Ishida et al. (column 2 lines 71-72)

c. A dimer acid or trimer acid hydrazide (further limited to a saturated or unsaturated linear C.sub.20-60dimer acid hydrazide in claim 2 and a saturated or unsaturated linear C.sub.20-40dimer acid mono- or dihydrazide in claim 3) corresponding to a dimer of octadecane- 1,18- dicarboxylic acid of Ishida et al. (column 3 lines 3-4).

10. Regarding claim 6, applicant claims the resin composition further comprising at least one member selected from the group consisting of an antioxidant, a heat stabilizer, a processing stabilizer, a weather (light)-resistant stabilizer, an impact resistance improver, a slip-improving agent, a coloring agent, and a filler. Ishida et al. disclose the polyoxymethylene composition with optional additives including antioxidants (column 5 lines 8-10) and light stabilizers (column 5 lines 30-32).

11. Regarding claims 7 and 8, applicant claims the antioxidant as substantially free of from an intramolecular ester bond and further limited to an antioxidant comprising a

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hindered phenol-series compound or a hindered amine-series compound. Ishida et al. disclose antioxidants of, inter alia, alkylidenebisalkyl-substituted phenols.

12. Regarding claims 7 and 13, applicant claims a weather (light)-resistant stabilizer substantially free of an intramolecular ester bond and further limited to a benzotriazole-series compound, a benzophenone-series compound, an aromatic benzoate-series compound, a cyanoacrylate-series compound, a oxalic anilide-series compound, and a hydroxyaryl-1,3,5-triazine-series compound. Ishida et al. disclose benzophenones and benzotriazoles as light-stabilizers (column 5 lines 30-32).

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harashina (US 6,673,405 B2) and in view of Ishida et al. (US 3,574,786) as applied to claims 1 and 6 above.

15. Regarding claims 1-4, applicants claim a polyacetal resin composition comprising 1) a polyacetal resin and 2) a carboxylic acid hydrazide. Harashina discloses a polyacetal resin composition comprising 1) a polyacetal resin (column 3 lines 32-33) and 2) a polycarboxylic acid hydrazide (column 12 lines 31-32).

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16. Regarding claim 6 applicants claim the polyacetal resin composition further comprising at least one member selected from the group consisting of an antioxidant, a heat stabilizer, a processing stabilizer, a weather (light)-resistant stabilizer, an impact resistance improver, a slip-improving agent, a coloring agent, and a filler. Harashina discloses polyacetal resin compositions comprising antioxidants (column 4 lines 21-22), heat stabilizers (column 12 lines 13-18), Processing stabilizers (column 9 lines 65-67), weather (light)-resistant stabilizers (column 5 lines 11-18), impact resistance improvers (column 15 line 38), slip-improving agents (column 15 lines 37-38), coloring agents (column 9 lines 24-31), and fillers (column 15 line 42).

17. Regarding claim 7, applicants claim the antioxidant, the processing stabilizer, the heat stabilizer, and the weather (light)-resistant stabilizer as substantially free from an intramolecular ester bond. Harashina discloses the antioxidant as 2,6-di-t-butyl-p-cresol (column 4 line 23), the processing stabilizer as polyoxyalkylene glycol (column 9 line 66 through column 10 line 2), the heat stabilizer as aliphatic amine (column 12 line 24), and the weather (light)-resistant stabilizer as benzotriazole (column 5 lines 13-14), all of which are free of intramolecular ester bond.

18. Regarding claim 8, applicants claim the antioxidant comprising at least one member selected from the group consisting of a hindered phenol-series compound and a hindered amine-series compound. Harashina discloses the antioxidant as 2,6-di-t-butyl-p-cresol (column 4 line 23) which is a hindered phenol series compound.

19. Regarding claim 9, applicants claim the processing stabilizer comprising at least one member selected from the group consisting of a long-chain fatty acid or a derivative

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thereof, a polyoxyalkylene glycol, and a silicone-series compound. Harashina discloses processing stabilizer including at least one member selected from (a) a long-chain or higher fatty acid or a derivative thereof, (b) a polyoxyalkylene glycol, (c) a silicone compound (column 9 line 66 through column 10 line 2).

20. Regarding claim 10, applicant claims the heat stabilizer comprising at least one member selected from the group consisting of a basic nitrogen-containing compound, a phosphine-series compound, a metal salt of an organic carboxylic acid, an alkali or alkaline earth metal compound, a hydrotalcite, and a zeolite. Harashina discloses the heat stabilizer including heat stabilizer includes (a) a basic nitrogen-containing compound, (b) a phosphine compound, (c) a metal salt of an organic carboxylic acid, (d) an alkaline or alkaline earth metal compound, (e) hydrotalcite, and (f) zeolite (column 11 lines 14-18).

21. Regarding claim 11, applicant claims the heat stabilizer comprising at least one member selected from the group consisting of an alkaline earth metal salt of an organic carboxylic acid, and an alkaline earth metal oxide. Harashina discloses the heat stabilizer as a metal salt of an organic carboxylic acid wherein the metal is an alkaline earth metal such as Mg and Ca (column 13 lines 51-55) and as alkaline earth metal oxides such as CaO and MgO (column 14 lines 39-41).

22. Regarding claim 12, applicant claims the heat stabilizer comprising an alkaline earth metal salt of an oxy-acid. Harashina discloses the heat stabilizer as metal hydroxides such as  $\text{Ca}(\text{OH})_2$  and  $\text{Mg}(\text{OH})_2$  (column 14 line 41).

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23. Regarding claim 13, applicant claims weather (light)-resistant stabilizer comprises at least one member selected from the group consisting of a benzotriazole-series compound, a benzophenone-series compound, an aromatic benzoate-series compound, a cyanoacrylate-series compound, an oxalic anilide-series compound, and a hydroxyaryl-1,3,5-triazine-series compound. Harashina discloses the weather (light)-resistant stabilizer as (a) a benzotriazole-series compound, (b) a benzophenone-series compound, (c) an aromatic benzoate-series compound, (d) a cyanoacrylate-series compound, (e) an oxalic anilide-series compound, and (f) a hindered amine-series compound (column 5 lines 13-18).

24. Regarding claim 14, applicant claims the impact resistance improver comprising at least one member selected from the group consisting of a thermoplastic polyurethane and an acrylic core-shell polymer. Harashina discloses the addition of polyurethane series resins (column 15 lines 40-41) and acrylic core-shell polymers (column 15 line 50) to the polyacetal resin composition.

25. Regarding claim 15, applicant claims the slip-improving agent comprising at least one member selected from the group consisting of an olefinic polymer, a silicone-series resin, and a fluorine-containing resin. Harashina discloses the addition of olefinic resins (column 15 line 41) to the polyacetal resin composition.

26. Regarding claim 16, applicants claim a process of producing a polyacetal resin composition by mixing a polyacetal resin and a carboxylic acid hydrazide using an extruder and feeding at least the carboxylic acid hydrazide through a side feed port of



the extruder. Harashina discloses a process of producing a polyacetal resin composition by mixing a polyacetal resin and a spiro-compound stabilizer in an extruder and feeding the polyacetal resin and spiro-compound stabilizer through a side feeder (column 15 lines 64-67).

27. Regarding claim 17 and 19, applicant claims a shaped article from the polyacetal resin composition which is an automotive part, an electrical or electronic device part, an architectural or pipeline part, a household utensil or cosmetic article part, or a medical device part. Harashina discloses shaped articles of the polyacetal resin composition discussed above (column 16 line 38) which can also be used advantageously as parts and members in a variety of fields inclusive of automotive parts, electrical and electronic component (driving component and driven component) parts, architectural members and pipeline installation parts, household and cosmetic product parts, and medical device (for diagnostic or therapeutic use) parts (column 17 lines 45-54).

28. Regarding claim 18, applicants claim a shaped article of the polyacetal resin composition wherein formaldehyde emission is (1) not more than  $1.0 \mu\text{g}/\text{cm}^2$  at  $80^\circ\text{C}$  for 24 hours and (2) not more than  $2 \mu\text{g}/\text{cm}^2$  at  $60^\circ\text{C}$  in saturated humidity for 3 hours. Examples 4-40 of Harashina all meet these limits on formaldehyde emissions in the same conditions (Tables 1-4).

29. Harashina does not disclose the use of the specific carboxylic acid hydrazides recited in claims 1-4 and 16 in the amounts recited in claim 5.

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30. Ishida et al. as discussed above teach the specific carboxylic acid hydrazides recited in claims 1-4 and 16 included in polyacetal resins in the amounts recited in claim 5. Ishida et al. teach that these particular carboxylic acid hydrazides improve thermal stability particularly with improving discoloration prevention in reclaimed and reprocessed molded polyacetal articles (column 2 lines 40-44 and Tables 1-7).

31. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the specific carboxylic acid hydrazides, discussed above, taught by Ishida et al. as the carboxylic acid hydrazide heat stabilizer in the polyacetal resin composition of Harashina because Harashina teaches that it is within the skill of the art to produce a polyacetal resin composition and article of the composition comprising polyacetal resin and a carboxylic acid hydrazide heat stabilizer and Ishida et al teach that it is within the skill of the art to add the specific carboxylic acid hydrazides listed in claims 1-4 and 16 in the amounts listed in claim 5 to a polyacetal resin as a thermal stabilizer. One would have added the dicarboxylic acid hydrazides of Ishida et al. to the polyacetal resin compositions of Harashina et al. in order to achieve a more thermally stable polyacetal resin composition and article thereof with particularly good discoloration resistance during processing and reprocessing. Absent any evidence to the contrary, there would have been a reasonable expectation of success in adding the specific carboxylic acid hydrazides of Ishida et al. to the polyacetal resin composition of Harashina.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL DOLLINGER whose telephone number is (571)270-5464. The examiner can normally be reached on Monday - Thursday 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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